Nutrition Informatics

SMAART Hub for Informatics enabled Nutrition Education (SHINE™)

Research, Innovate, Policy, Practice, Entrepreneurship

Welcome Message

Welcome to the 19th issue of the Nutrition Informatics newsletter SHINE (July 2023) of the Foundation of Healthcare Technologies Society. This newsletter aims to bring together the advancements in the field of Nutrition Informatics Research, Innovation, Policy, Practice, and Entrepreneurship. The newsletter will also provide recent updates about the various national and International nutrition informatics projects, and highlight some of the major nutritional challenges that can potentially be solved through various nutrition informatics interventions using data, information, and knowledge frameworks. We also highlight some of the student successes in the field of nutrition informatics research and practice. In addition, we bring together stories of the student's learning experience with the real nutrition informatics projects addressing real public health challenges. I encourage you to make a meaningful contribution to this newsletter by sharing data-driven, evidence-based ideas, innovations, and interventions that aim to address nutritional challenges impacting health among individuals, families, and communities across diverse Indian settings.

Dr. Ashish Joshi
Ph.D. MBBS MPH

Nutrition Informatics

SMAART Hub for Informatics enabled Nutrition Education (SHINE™)

Research, Innovate, Policy, Practice, Entrepreneurship

THE ROLE OF PHARMACOGENOMICS IN NUTRITION INFORMATICS

Pharmacogenomics

Human genetics is a fast-expanding area of study. Pharmacogenomics is the study of the genetic components that affect how an individual will react to a certain substance. The phrase, which is a combination of the terms “pharmacology” and “genomics,” refers to the intersection of genetics and drugs. Pharmacogenomics aims to customize a patient’s therapy. Pharmacogenomics is making it possible to determine a person’s genetic makeup and use that knowledge to make educated treatment decisions, such as the likelihood that the therapy would be successful right away. (Canada, 2005).

Once medicine enters a patient’s body, the drug must travel to its target(s), act on its target(s), and then exit the body. Pharmacokinetic (PK) genes can influence a drug’s ability to be absorbed into and transported throughout the body, metabolised (either to an active form or broken down into an inactive form), and eliminated. The first and final of these processes are made easier by PK genes. Pharmacodynamic (PD) genes, which include the direct targets themselves, genes impacted downstream, and the genes in charge of the clinical result, are involved in how a medication acts on its targets. Both purposeful “on-target” effects that result in the desired therapeutic response and inadvertent “off-target” effects that result in undesirable outcomes can be attributed to the PK and PD genes (side effects or other unintended consequences of the drug).

READ MORE

NUTRITION RESEARCH IN GLOBAL SETTINGS

Nutrition Informatics

SMAART Hub for Informatics enabled Nutrition Education (SHINE™)

Research, Innovate, Policy, Practice, Entrepreneurship

APPLICATION OF AGRICULTURAL BIOTECHNOLOGY TO IMPROVE FOOD NUTRITION AND HEALTHCARE PRODUCTS

Crop plants play a vital role in providing essential nutrients to both humans and livestock. These nutrients include carbohydrates, lipids, proteins, minerals, and vitamins, either directly or indirectly. However, the type and amount of nutrients can vary significantly across different food crops. Consequently, relying solely on a single food crop as the source of nutrients cannot lead to a balanced diet, resulting in malnutrition and deficiency diseases, especially in developing countries where poverty is prevalent.

To address this issue, biotechnology offers exciting opportunities to enhance the nutritional quality of crops, especially when the necessary genetic diversity is lacking. While agricultural biotechnology initially focused on improving input traits like herbicide tolerance, insect resistance, and virus resistance, since the 1990s, more attention has been given to output traits, specifically the enhancement of nutritional content in crops.

Advancements in plant transformation and transgene expression have enabled the use of plants as bioreactors, capable of producing a wide range of bio-products on a large scale and at a low cost. This progress has led to the creation of various proof-of-concept plant-derived healthcare products, some of which have already been successfully commercialized.

Source : https://apjcn.nhri.org
Image : https://www.freepik.com

READ MORE

Nutrition Informatics

SMAART Hub for Informatics enabled Nutrition Education (SHINE™)

Research, Innovate, Policy, Practice, Entrepreneurship

Source : https://www.sciencedirect.com/

The purpose of this research was to develop a machine learning model using a large US-based electronic health record (EHR) database to identify patients who might have pulmonary hypertension (PH). The model, based on the XGBoost gradient boosting technique, used patient demographics, medical visits, diagnoses, procedures, prescriptions, and lab test results as features.

The most significant predictive features included heart failure, shortness of breath, and atrial fibrillation. The model achieved an impressive area under the receiver operating characteristic curve (AUROC) of 0.92 for PH prediction and remained effective up to 18 months before diagnosis.

Furthermore, the model successfully identified subgroups of PH patients with pulmonary arterial hypertension (PAH) and chronic thromboembolic pulmonary hypertension (CTEPH) with AUROCs ranging from 0.79 to 0.96. This model has the potential to minimize diagnostic delays and improve patient outcomes in PH.

Nutrition Informatics

SMAART Hub for Informatics enabled Nutrition Education (SHINE™)

Research, Innovate, Policy, Practice, Entrepreneurship

FOUNDATION OF HEALTHCARE TECHNOLOGIES SOCIETY

DELHI OFFICE ADDRESS-

321, 322 & 323 THIRD FLOOR

SOMDATT CHAMBER – 2

9 BHIKAJI CAMA PLACE, NEW DELHI

DELHI – 110066

PHONE: (011) 41621004

PHONE:+91-8527897771

EMAIL: CONTACT@FHTS.AC.IN

HTTPS://FHTS.AC.IN/

CLICK ON LOGOS TO FOLLOW US ON SOCIAL MEDIA